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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,298	06/24/2003	Bernd Witzigmann	2879P	1201
41170	7590	12/20/2004	EXAMINER	
EMCORE CORPORATION 145 BELMONT DRIVE SOMERSET, NJ 08873			NGUYEN, PHILLIP	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,298

Applicant(s)

WITZIGMANN ET AL.

Examiner

Phillip Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/24/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-5 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites “wherein a manufacturing tool **can** abut” which is not clear what the applicant intend to claim because using “can” in the claim is not appropriate. Furthermore, a manufacturing tool is not a part of the laser chip; therefore the claim fails to further limit the invention.

Claims 3-5 and 10 fail to further limit the invention because the claims only recite the functional languages.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 7-8 and 12-22 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Nagahama et al. ('382).

With respect to claim 1, Nagahama discloses in Figure 2 a semiconductor chip comprising a ridge structure at a junction surface of the laser chip; and a plurality of pads 24 only on non-active areas of the junction surface, wherein the pads protrude beyond an edge of the ridge structure.

With respect to claim 7, Nagahama discloses in Figure 9 a semiconductor laser chip including a plurality of contacts 313, 314, 316-321 wherein the plurality of pads is disconnected from the plurality of contacts. It is noted that the pads are stopped at the ridge structure.

With respect to claim 8, Nagahama discloses the pads are formed of Ti or Al which are metals (col. 37, lines 58-59).

Claims 1-2, 6, 9 and 12-22 are also rejected under 35 U.S.C. 102(e) as being clearly anticipated by Cai et al. ('779).

With respect to claim 1, Cai discloses in Figure 3 a semiconductor chip 300 comprising a ridge structure 305 at a junction surface the laser chip; and a plurality of pads 302 only on non-active areas of the junction surface, wherein the pads protrude beyond an edge of the ridge structure and an edge of the junction surface.

With respect to claim 2, Cai discloses a substrate 306 and a mounting surface (on either side of the substrate). The claim further recites "wherein the laser chip is capable of being mounted". It has been held that the recitation that an element is "capable of" performing a

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function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

With respect to claim 6, Cai shows the ridge structure protrudes beyond an edge of the junction surface.

With respect to claim 9, Cai discloses the pads 602 are non-metallic (paragraph 0031).

Claims 12-22 further recites a method for “providing” a semiconductor chip. Since Nagahama and Cai disclose the product, it is inherent product by process for performing a method as recited in the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 10-11, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai et al. ('254) in view of Miyazaki ('379).

With respect to claims 3-4, Cai discloses the claimed invention except for a manufacturing tool “can” abut the pad without abutting the ridge shape structure. Miyazaki discloses in Figures 1-2 and 7-10 an optical chip that comprising ridge shape structure having a plurality of pads 18 only on non-active areas of the junction surface wherein any manufacturing tool except being a laser chip. For the improvement, it would have been obvious to the one

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having ordinary skill in the art at the time the invention was made to provide a laser chip that has a plurality of pads on the non-active area that keep manufacturing tool from abutting the ridge structure of the laser chip as taught by Miyazaki to Kai. It is also obvious to design pads that keep any manufacturing tool from abutting or touching the ridge structure of the laser chip in order to avoid the damage or change the laser physical body.

With respect to claims 4-5, it would have been obvious to one having ordinary skill in the art at the time the invention was made to , since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With respect to claims 10-11, using a laser chip functioning at frequency of 1GHz or higher is only design choice. It is obvious that one skilled in the art could use any laser with frequency that is equal or greater than 1Ghz. Providing source current to the laser only involve routine skill in the art.

With respect to claim 23, Cai and Miyazaki disclose the claimed invention as shown in the rejection of claims 3-4 and further including a substrate 306.

Citation of Pertinent References

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Miyazaki discloses OPTICAL DEVICE AND ITS MANUFACTURING METHOD, U.S. Patent No. 6574379

The patent to Nagahama et al. discloses NITRIDE SEMICONDUCTOR LIGHT-EMITTING AND LIGHT-RECEIVING DEVICES, U.S. Patent No. 6172382

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The Patent Application Publication to Cai et al. discloses SEMICONDUCTOR DEVICES WITH IMPROVED HEAT DISSIPATION AND METHOD OFR FABRICATING SAME, U.S. PG Pub No. 20040026779

Communication Information

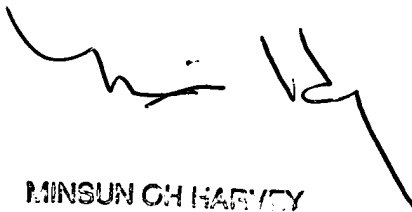
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MINSUN OH HARVEY
PRIMARY EXAMINER